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DESCRIPTIONS OF NEW NORTH AMERICAN TRICHOPTERA.

By HERBERT H. ROSS,

Illinois State Natural History Survey, Urbana, Ill.

Collections of caddis flies examined recently have included specimens of hitherto undescribed forms which show some new characters for the group. The following descriptions include the more interesting of these. I wish to express my gratitude to Dr. C. O. Mohr, Illinois State Natural History Survey, for assistance with the drawings. Holotypes are deposited in the Illinois Natural History Survey collection.

Rhyacophila gemona, new species.

Male.—Length 17 mm. Head, body, antennae, and mouth parts almost black, legs dark brown at base, grading to tawny at apex; wings without an obvious pattern, conspicuously mottled with medium brown and light gray. General structure typical for genus. Genitalia, fig. 1, most closely resembling those of *acropedes* Banks, differing in the dorso-ventrally compressed ninth segment and the curious tenth tergite. Ninth segment wide, collar-like and twice as wide as deep. Tenth tergite fitting into a concavity on the ninth, its base with a pair of dorsal projections forming a heart-shaped basal cavity, the apical portion produced into a wide, bifid process. Claspers long; the basal segment seen from lateral view slightly longer than the apical, with a constriction near middle, but seen from ventral view with a foot-like base at right angles to lateral portion; apical segment sinuate, its apex incurved and produced into a narrow lobe whose inner margin is beset with a cluster of black setae. Aedeagus composed of three parts: a sclerotized, cap-shaped base from the dorsum of which protrudes an elongate sclerotized tube somewhat heart-shaped at the base but rapidly tapering to a narrow tube; from the ventral part of the cap-like plate extend a pair of extensile membranous appendages bearing a "claw" of dense, sharp setae at apex.

Holotype, male.—Razorhone Creek, Mt. Baker, Wash., July 21, 1936, H. H. Ross.

Rhyacophila norcuta, new species.

Male.—Length 11 mm. Head and body black; antennae, base of legs, and wings dark brown; apical portion of legs shading to tawny, front wings with scattered patches of light hair. General structure typical for genus. Genitalia, fig. 2, most closely resembling those of *rotunda* Banks, differing in the produced mesal portion of the tenth tergite, infolded dorso-mesal lobe of apical segment

of clasper and other characters. Ninth segment angulate where indented to receive clasper. Tenth tergite longer than wide, dorsal portion prolonged into a semi-truncate mesal lobe. Claspers deep; basal segment with apico-ventral corner produced considerably ventrad and joining the body of segment with a deep crease; apical segment much deeper than long, apical margin incised, ventral lobe produced, and lateral face with a very pronounced ridge extending from the base into the ventral lobe; mesal side of segment with a large area folded over, entire segment somewhat boot-shaped. Aedeagus with a central sclerotized flap, produced at apex into a thin point; from the base arise a pair of extensile membranous arms, each with a semi-sclerotized flap at apex covered with a thin brush of stout bristles.

Holotype, male.—Ilwaco, Wash., May 26, 1918, A. Spuler.

Rhyacophila pellisa, new species.

Male.—Length 8 mm. Body dark brown; antennae slightly lighter; legs luteous; wings uniformly infuscate with brown, with only a few inconspicuous lighter areas around apex. General structure typical for genus. Genitalia, fig. 3, resembling most closely those of *atrata* Banks and *valuma* Milne, differing in shape of tenth tergite and aedeagus. Tenth tergite incised on meson to form a V-shaped sclerite. Claspers with basal segment long and parallel-sided, approximately three times as long as wide; apical segment rhombic, its apical margin abruptly and deeply incised at dorsum so that apex of dorsal margin forms a short, overhanging hook. Aedeagus with a dorsal, sclerotized tube and a ventral spatula which has its base membranous and apex covered with a cluster of long, spiculate hair confined to dorsal and lateral surfaces; this apical brush is fusiform from all angles, not clavate as in *valuma*.

Female.—Similar in size, color, and general structure to male. Apex of abdomen drawn out into a narrow tube in which all the segments are cylindrical and unmodified.

Holotype, male, and *allotype, female.*—Cascade Lodge, Rocky Mountain National Park, Colo., Aug. 2, 1931, H. C. Severin. *Paratypes.*—Same data, 3 ♂, 7 ♀.

Dolophilus strotus, new species.

Male.—Length 4.3 mm. Color uniform yellowish-brown with eyes black and pubescence ranging from tawny to dark brown. General structure typical for genus, R_{2+3} undivided, abdominal sternites without ornamentation. Lack of tubercles or flaps on seventh and eighth sternites separates this species from *shawnee* Ross, its closest ally. Male genitalia as in fig. 6. Ninth segment widest in middle, tenth tergite and cerci set into a notch in its dorsum. Tenth tergite somewhat triangular, its apex narrowly truncate, its base indistinctly separated from either ninth tergite or cerci. Cerci finger-like, slightly shorter than tenth tergite, with a cluster of fine setae at apex. Claspers with basal segment narrowed towards apex, shorter and stockier than apical segment, which is slightly narrowed just beyond middle and expanded into a slightly spatulate apex. The inner face of this spatulate apex bears a brush of short, stout, black setae.

Holotype, male.—Page, Okla., June 23, 1937, Standish-Kaiser.

Parapsyche almota, new species.

Male.—Length 13 mm. Head and body mottled with dark and light brown, antennae and legs tawny, wings purplish with abundant pale areas scattered over the entire front wing. General structure typical for genus. Genitalia, fig. 5, resembling very closely those of *apicalis* (Banks), differing in the dorsal production of the ninth tergite into a pair of high and declivous humps, in addition to differences in other parts of the genitalia. Tenth tergite divided into a pair of cylindrical, curved arms which almost meet apically, the base of each with a small patch of long setae. Claspers short and one-segmented, with a thumb-like process projecting from mesal side of ventral margin; clasper clothed with abundant setae but mesal process beset only with minute pore-like structures. Aedeagus with a wide base and a constricted middle portion which is slightly expanded at apex; extreme apex with a large sclerotized hook curved ventrad.

Female.—Length 14 mm. Color and general structure as in male. Eighth tergite regularly collar-like, without brushes of setae. Eighth sternite divided into two plates separated along the meson for their entire length and with the apico-mesal region evenly rounded and bearing an even, sparse row of setae from the apico-lateral corner to the middle of the mesal margin. Remainder of the genitalia similar in essential respects to *Hydropsyche*.

Holotype, male.—Almota, Wash. *Allotype, female.*—Vancouver, B. C., July 20, 1936, along Seymour Cr., H. H. Ross.

Parapsyche cardis, new species.

Male. Length 14 mm. Body and wings mottled with light and dark shades of brown typical of other members of the genus. General structure typical for genus. Genitalia, fig. 4, resembling most closely those of *elsis* Milne, differing in the heart-shaped tenth tergite and shorter claspers. Ninth segment produced into a dorsal hump. Tenth tergite short and wide, the apex turned ventrad, the dorsal view heart-shaped, tapering to a rounded point. Claspers short and very slightly sinuate, the dorsal margin rounding into the apical, the apico-ventral corner sharply angulate, with no vestige of a suture separating off an apical segment. Aedeagus with semicircular general outline, the base largest, the apex bearing a dorsal, thumb-like projection: from the apex protrudes a series of membranous folds containing internal sclerotized supports.

Holotype, male.—Smokemont, N. C., June 14, 1935, H. H. Ross.

HOMOPLECTRA, new genus.

Characteristics.—Wing venation, spur count, and structure of mouth parts typical for the family Hydropsychidae. It is most closely related to *Diplectrona* Banks but differs in the coalesced condition of Sc_2 and R_1 in both wings. Antennae relatively short and robust. Posterior portion of dorsum of head with a high, raised "V" composed of a pair of sharp, short ridges diverging anteriorly, not quite meeting posteriorly. All wings with Sc_2 joining R_1 at base of stigmal region, the two immediately separating and diverging again.

Genotype.—*Homoplectra alseae* n. sp. (original designation).

The species *Diplectrona nigripennis* Banks belongs in this genus.

Homoplectra alseae, new species.

Male.—Length 8.5 mm. Head, body, and base of legs black; antennae, apex of femora, tibiae, and tarsi golden yellow; wings almost black. General structure as described for genus. Genitalia similar in general pattern to those of *nigripennis* (Banks), but differing in the more complicated structure of the aedeagus, fig. 7. Tenth tergite with a pair of dorsal horns. Claspers long and slender, with an indistinct suture separating off a button-like apical segment. Aedeagus consisting of a large bulb-like internal base from which arise the following structures, numbered as in fig. 7: (1) a stout, curved dorsal prong subdivided at apex, not projecting beyond body cavity; (2) a pair of sclerotized filaments arising just beneath; (3) a pair of sclerotized processes with a bulbous, sinuate base and narrow, tapering apex; (4) the rod-like apex of the aedeagus proper; and (5) a long, slender, sclerotized process below this whose apex is split into a pair of ribbon-like plates.

Holotype, male.—Alsea Mountain, Benton County, Ore., May 3, 1936, H. A. Scullen.

Hydropsyche amblis, new species.

Male.—Length 10.5 mm. Head and thorax black, abdomen and appendages tawny, antennae with dark, dorsal V-marks on seven basal segments of flagellum, wings dark brown with very little pattern. General structure typical for *alternans* group, differing from *tana* Ross, its closest relative, in the long snout of the aedeagus and sessile, dorso-lateral spur of aedeagus. Genitalia, fig. 9, with tenth tergite produced into a sharp dorso-mesal hump and its apex divided into a pair of deep, thin, lateral processes which form a semicircle when seen from dorsal view. Claspers with apical segment short, its apex produced into a slight point. Aedeagus with base wide, forming a right angle with remainder; dorso-lateral process represented by a sessile spur which curves outward; apex produced into a thumb-like process bearing two pairs of setal pouches, the anterior pair opening through the apex, the posterior pair through the side-wall.

Holotype, male.—Corvallis, Ore., June 6, 1935, G. Ferguson.

Hydropsyche protis, new species.

Male.—Length 8 mm. Head and body dark brown, appendages light brown; wings brown, apical portion with a row of light spots running from stigma to anal angle. General structure typical of *alternans* group, differing from *amblis* in the aedeagus, which does not extend beyond dorso-mesal plates. Genitalia, fig. 8, with tenth tergite hump-like, the hump subdivided into a pair of hairy, low, lateral lobes and a sharp, slightly higher, unclothed mesal lobe; apico-lateral processes finger-like and of moderate length. Claspers with apical segment short, upper margin concave, apex slightly pointed. Aedeagus with the "bend" obtuse and the base large; dorso-lateral process represented by a sessile, out-turned spur; apex short, not extending beyond dorso-mesal plates and containing a double pouch of long, upturned setae.

Female.—Robust and slightly longer than male, otherwise similar in size, color, and general structure. Plates of eighth sternite differing from other members of the *alternans* group in that they are not produced into a high lobe

but are almost identical with those of *H. cuanis* Ross, having the meso-apical corner almost quadrate.

Holotype, *male*, and *allotype*, *female*.—Trout Creek, Utah, July 25, 1935, H. B. Stafford.

Hydropsyche orris, new name.

Hydropsyche cornuta Ross, Ill. St. Natural History Survey Bull., 21 (4) : p. 141, March, 1938. Preoccupied by *H. cornuta* Martynov, 1909.

Mr. Mosely has kindly drawn my attention to the prior use of Martynov's name.

Limnephilus aretto, new species.

Male.—Length 13 mm. Color brown, spines on legs black, and wings flecked with lighter and darker brown spots. General structure, including chaetotaxy of head, typical of subgenus *Anabolina*. Front basitarsus short and stocky, only half length of succeeding segment. Eighth tergite with a small, meso-apical projection covered with a brush of short, black setae.

Male genitalia, fig. 11, most closely resembling those of *occidentalis* Banks, but markedly different in the short, stocky, tenth tergite. Ninth segment reduced to a narrow collar dorsally, the ventral portion enlarged and somewhat bulbous. Plates of tenth tergite with a wide base and a short mesal process which is slightly recurved at the apex. Cerci without teeth or projections on mesal surface. Claspers short, stocky and truncate, and only indistinctly separated from ninth sternite. Aedeagus with central portion simple and with lateral arms as in fig. 11A, the apex produced into a long point with a stout spur at its base.

Holotype, *male*.—Pullman, Wash., C. V. Piper.

Stenophylax indiana, new species.

Male.—Length 17 mm. Body and appendages faun colored, the wings with a small dark spot in base of cell R_4 and around M just before it branches. General characteristics typical for subgenus, the spur count 1–2–2, the leg spines black.

Genitalia, fig. 10, most closely approaching *subfaciatus* (Say), differing most conspicuously in the very stocky aedeagus. Eighth tergite with the apico-mesal portion convex and bearing a pair of sparse brushes of small, dark setae; there is no concavity between the two brushes but a slight one laterad of each. Tenth tergite short, each half divided into a short, mesal point and a small, lateral hump. Cerci large, extending a considerable distance beyond apex of tenth tergite. Claspers held at right angles to longitudinal axis; base pad-like with abundant long setae, apex produced into a concave sclerotized plate whose mesal side is produced into a long, sharp point. Aedeagus short and stocky, apical portion extremely constricted just beyond base, apex narrowed to form a slightly constricted tube; lateral processes with base enlarged and vasiform, apical portion consisting of a stout spine sharply upturned at end.

Female.—Length 19 mm. Color and general structure as for male. No satisfactory characters have yet been found to distinguish it from females of *subfaciatus*.

Holotype, male.—Rogers, Ind., October 7, 1937, Ross & Burks. *Allotype, female.*—Athens, Ohio, September 23, 1933, W. C. Stehr. *Paratypes.*—Same data as allotype: Sept. 23, 1933, 1 ♀; September 15, 1933, 1 ♂; September 25, 1933, 1 ♂; September 30, 1931, 1 ♂.

Micrasema bactro, new species.

Male.—Length 6 mm. Color black the appendages shading to brownish General structure typical for genus. Male genitalia, fig. 12, indicating a similarity to the *rusticum* group, differing markedly, however, in the sixth, seventh, and eighth tergites, which are cut away dorsally so that the two sides are connected only by a narrow sclerotized bridge, fig. 12A. Cerci closely appressed at base, and their bases fused on the meson. Tenth tergite wide at base, narrowing to a rounded apex, and bearing dorsally a single wart with one or two scattered setae. Claspers clavate, the upper margin subdivided into a pair of setiferous, thumb-like processes, the apex broad and almost truncate, wider than base; the inner surface of the whole strongly concave.

Holotype, male.—Strawberry Camp, Grant County, Ore., July 17, 1936, 5700 ft. elevation, R. E. Reider.

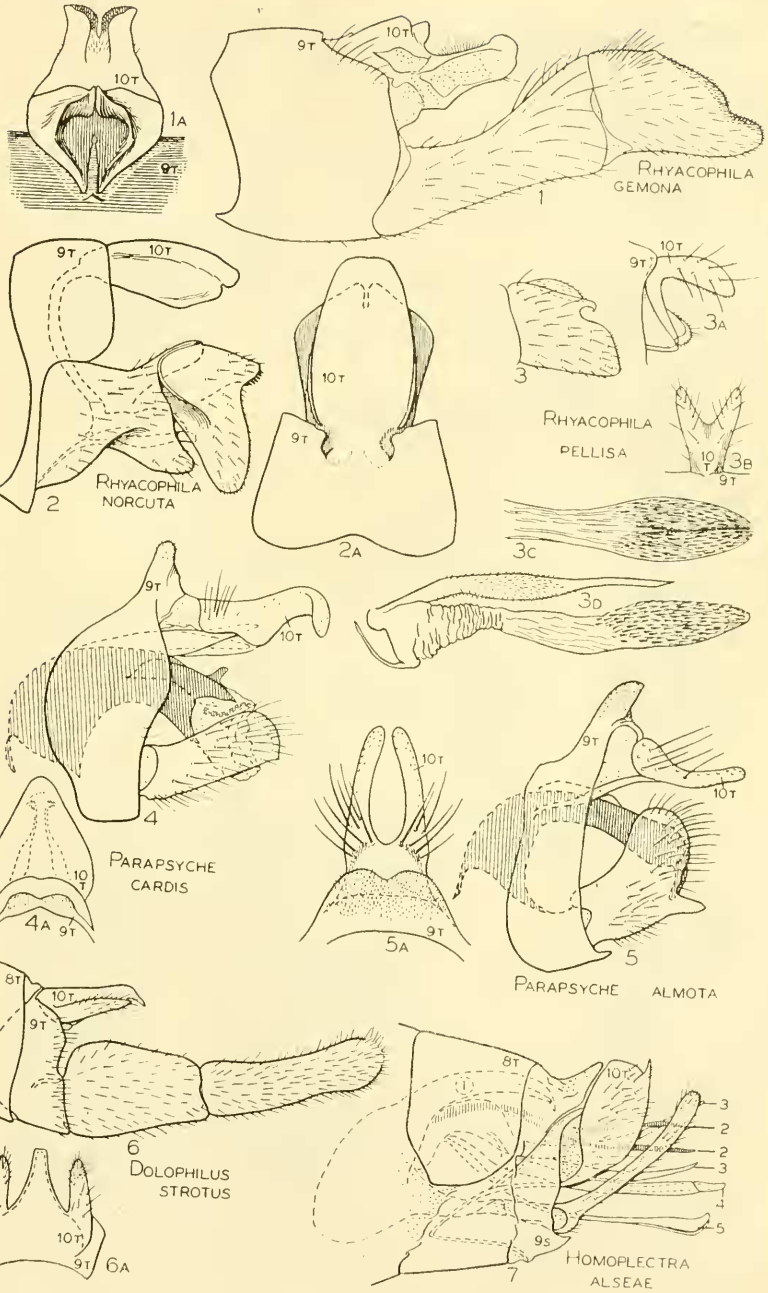
Explanation of Plates 12 and 13.

Male genitalia of Trichoptera.

Fig. 1. *Rhyacophila gemona;* 1A, tenth tergite, dorsal view.
Fig. 2. *Rhyacophila norcuta;* 2A, ninth and tenth tergites, dorsal view.
Fig. 3. *Rhyacophila pellisa*, apical segment of clasper; 3A, tenth tergite, lateral view; 3B, tenth tergite, dorsal view; 3C, ventral lobe of aedeagus, dorsal view; 3D, aedeagus, lateral view.
Fig. 4. *Parapsyche cardis;* 4A, tenth tergite, dorsal view.
Fig. 5. *Parapsyche almota;* 5A, tenth tergite, dorsal view.
Fig. 6. *Dolophilus strutus;* 6A, ninth and tenth tergites, dorsal view.
Fig. 7. *Homoplectra alseae.*
Fig. 8. *Hydropsyche protis;* 8A, aedeagus.
Fig. 9. *Hydropsyche amblis;* 9A, aedeagus; 9B, tenth tergite, dorsal view.
Fig. 10. *Stenophylax indiana*, aedeagus; 10A, clasper, caudal view; 10 B, ninth and tenth tergites, dorsal view; 10C, eighth tergite, dorsal view.
Fig. 11. *Limnephilus aretto;* 11A, aedeagus.
Fig. 12. *Micrasema bactro;* 12A, apex of abdomen, dorsal view.

Abbreviations.

6T, 7T. . .10T—Sixth to tenth tergites, respectively.
9s—Ninth sternite.


10T
1A
9T
9T
10T
1
RHYACOPHILA
GEMONA
9T
10T
2
RHYACOPHILA
NORCUTA
10T
9T
2A
9T
10T
3A
3
RHYACOPHILA
PELLISA
10T
3B
9T
3C
3D
9T
10T
4
PARAPSYCHE
CARDIS
10T
4A
9T
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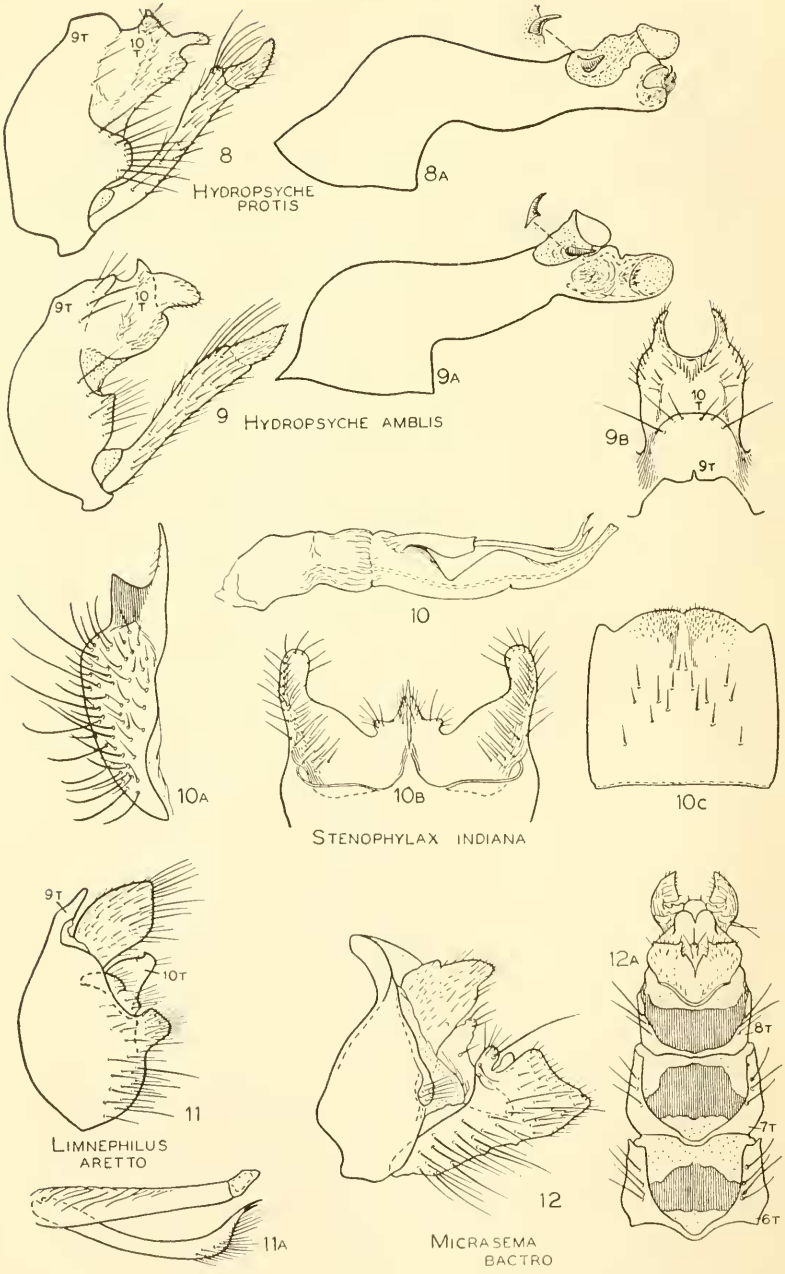
5A
9T
9T
10T
5
PARAPSYCHE
ALMOTA
8T
10T
9T
6
DOLOPHILUS
STROTUS
10T
9T
6A
8T
10T
3
2
2
3
4
5
9S
7
HOMOPLECTRA
ALSEAE


9T
10T
8
HYDROPSYCHE PROTIS
8A
9T
10T
9
HYDROPSYCHE AMBLIS
9A
9B
10T
9T
10
10A
10B
10C
STENOPHYLAX INDIANA
9T
10T
11
LIMNEPHILUS ARETTO
11A
12
MICRASEMA BACTRO
12A
8T
7T
6T